

REMARKS

Claims 1 through 10 are currently pending in the application.

This amendment is in response to the Office Action of January 29, 2007.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on Mertol (U.S. Patent 6,008,536) in Combination with Block et al. (U.S. Patent 5,137,959)

Claims 1, 3, 4, 6, 8, and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Mertol (U.S. Patent 6,008,536) in combination with Block et al. (U.S. Patent 5,137,959). Applicant respectfully traverses this rejection, as hereinafter set forth.

Applicant asserts that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure.

Turning to the cited prior art, the Mertol reference teaches or suggests a grid array device package around an integrated circuit chip. The device package includes a substrate and a heat spreader. A thermal interface layer 36 may be of a thermal conductive epoxy compound including particles of a thermally conductive mater such as silver, aluminum, boron nitride, etc. Alternately, the thermal interface layer 36 may be a layer of thermal grease, thermal wax, or a piece of thermal interface tape.

The Block et al. reference teaches or suggests the use of alumina platelets used as thermally conductive, insulating filler in thermally conductive, insulating elastomers, which are thermo-plastic rubbers, formed into a dried sheet or molded in a die using heat and pressure.

Applicants assert that any combination of the Mertol reference and the Block et al. reference does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 because any combination of such cited prior art, at the least, fails to teach or suggest all of the claim

limitations of the inventions of independent claims 1, 4, 6, and 9. Applicants assert that any combination of the Mertol reference and the Block et al. reference does not teach or suggest the claim limitations of the inventions of independent claims 1, 4, 6, and 9 calling for “a gel elastomer contacting at least a portion of the back side surface of the semiconductor die, the gel elastomer comprising a gel elastomer”, an “a heat sink cap having the substrate and a portion of the compliant adhesive, a thermally conductive material gel elastomer having surface wetting properties and heat transfer properties compliant under light pressure, the heat sink cap covering the compliant adhesive, gel elastomer, the semiconductor die, the plurality of solder balls, and at least a compliant gel or semi-solid adhesive filled with a thermally conductive material having surface wetting properties for heat transfer”, “a gel elastomer contacting a portion of the back side surface of the semiconductor die, the gel elastomer comprising a cross-linked silicone gel filled with a thermally conductive material compliant under light pressure; and a heat sink cap having the substrate and a portion of the gel elastomer, the heat sink cap covering the gel elastomer, the semiconductor die, the plurality of solder balls, and portion of the substrate free of any space therebetween”, “a heat sink cap having the substrate covering the compliant adhesive, a thermally conductive material gel elastomer including a cross-linked silicone gel, the semiconductor die, the plurality of solder balls, a portion of the substrate having no space therebetween, the heat sink cap contacting at least a portion of the portion of the substrate in contact therewith having no space therebetween”. Applicants assert that the Mertol reference does not teach or suggest any compliant material, gel elastomer, or cross-lined silicone gel while the Block et al. reference merely describes a rubber elastomer in sheet form or solid die cast form. Applicants asserts that any combination of the Mertol reference and the Block et al. reference cannot and does not teach or suggest the claim limitations of presently amended independent claims 1, 4, 6, and 9 because any combination of such prior art contains no such teachings or suggestions of such claim limitations.

Accordingly, presently amended independent claims 1, 4, 6, and 9 are allowable as well as dependent claims 2, 3, 5, 7, and 8 therefrom.

Obviousness Rejection Based on Mertol (U.S. Patent 6,008,536) and Block et al. (U.S. Patent 5,137,959), and Further in Combination with Chia et al. (U.S. Patent 6,225,695)

Claims 2, 5, 7, and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Mertol (U.S. Patent 6,008,536) and Block et al. (U.S. Patent 5,137,959), as applied to claims 1, 4, 6, and 9, and further in combination with Chia et al. (U.S. Patent 6,225,695). Applicant respectfully traverses this rejection, as hereinafter set forth.

Applicants assert that dependent claims 2, 5, 7, and 10 are allowable as they depend from allowable presently amended independent claims 1, 4, 6, and 9.

Applicant submits that claims 1 through 10 are clearly allowable over the cited prior art.

Applicant requests the allowance of claims 1 through 10 and the case passed for issue.

Respectfully submitted,



James R. Duzan
Registration No. 28,393
Attorney for Applicant
TRASKBRITT
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

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